Docket: 070-0036

JUN 17 1993

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MEMORANDUM FOR: William L. Axelson, Deputy director, Division of Radiation Safety and Safeguards

FROM: John A. Grobe, Chief, Fuel Cycle and Decommissioning Branch

SUBJECT: COMMENT: SUPPLEMENT TO NRC BULLETIN NRCB 91-01, REPORTING LOSS OF CRITICALITY SAFETY CONTROLS

This is in response to John T. Greeves' memorandum of June 10, 1993, requesting comments on the subject document. As per your instructions you asked that we pass along our comments for your review. Our comments are as follows:

> The supplement clearly references reporting criteria in accordance with 10 CFR Part 20.403 and Part 70.50. Holders of SNM licenses are familiar with these regulations and should have no difficulty in implementing the reporting criteria of Bulletin 91-01.

We concur that the supplement should clarify the criticality reporting issue.

Original Signed by John A. Grobe

John A. Grobe, Chief, Fuel Cycle
and Decommissioning Branch

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From: John T. Greeves (JTG1)
To: RLF, LJC1, RWC, CEN1, RAS1, JPS, EQT
Date: Thursday, June 10, 1993 1:54 pm
Subject: 91-01 -Forwarded

Attached is a copy of NRC BULLETIN NCRB 91-01 SUPPLEMENT: REPORTING LOSS OF CRITICALITY SAFETY CONTROLS. NMSS has prepared this document to clarify a number of issues that have come up since 91-01 was issued. We think that this document will help settle the criticality reporting issue. I would appreciate your review, to see if there are any serious flaws in the supplement. Based on the response to the supplement, it is our intention to get all licensees on an equal footing.

Please E-mail your comments to Mark Klasky (LMK1) by 6/18.
Forwarded mail received from: MLK1

CC: RFB, CLC, DMC, CWE, JAG, JHJ, MLK1, JHR1, MXT

Files: m0:MESSAGE, m1:BULREV2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS
WASHINGTON, D.C. 20555

June , 1993

NRC BULLETIN NRCB 91-01, SUPPLEMENT: REPORTING LOSS OF CRITICALITY SAFETY CONTROLS

Addressees

All fuel cycle and uranium fuel research and development licensees.

Purpose

The purpose of this document is to clarify the reporting requirements of NRC Bulletin 91-01.

Background

This is a follow-up to Bulletin 91-01, **REPORTING LOSS OF CRITICALITY SAFETY CONTROLS**, which was issued on October 18, 1991. The Bulletin requested that addressees inform the NRC of their criteria and procedures to assure the prompt evaluation and reporting of conditions and events involving criticality safety problems.

Description of Circumstances

The NRC staff has reviewed each licensee's response to the Bulletin. Most responses reflected a commitment to promptly evaluate events with criticality safety implications, report the most significant events immediately to the NRC, and report less significant events within 24 hours.

Also, we received numerous comments on the Bulletin through correspondence and various meetings and workshops. A major comment concerned the Bulletin's statement that loss or lack of a controlled parameter related to criticality safety should be reported to the NRC immediately. Several persons noted that further clarification regarding the definition of "a loss of a controlled parameter" is needed. Also, several persons noted that a loss of a controlled parameter is not always a significant event warranting an immediate report; for example, if the event involves a small amount of special nuclear material. These licensees maintained that they should only report events immediately to the NRC if there is a significant threat of a criticality accident or if the severity of the threat cannot be readily determined.

Discussion

We have considered these comments and conclude that further clarification is warranted. Therefore, we are clarifying that we want reported to the NRC

immediately those cases where (1) more than a safe mass of fissionable material is involved or (2) where moderation is used as the primary criticality control. The following list establishes the criteria for immediate reporting under Bulletin 91-01.

Immediate Reporting Criteria

1. Any event that results in the violation of the double contingency principle, as defined in ANSI 8.1, and where the double contingency principle cannot be re-established within 4 hours after the initial observation of the event.

2. All cases involving a controlled parameter previously identified by the NRC or the licensee as requiring reporting to the NRC upon failure and where the double contingency principle can not be re-established within 4 hours after the initial observation of the event.

3. Any case where it is determined that a criticality safety analysis was deficient and where necessary controlled parameters were not properly established.

4. Any case where it is determined that an unusual event or condition exists for which the severity (significance of the event) and/or remedy (corrective actions to re-establish the double contingency principle) is not readily identifiable.

Events and/or conditions that satisfy the above criteria should be reported within 4 hours from the initial observation, in accordance with 10 CFR 20.403 and 70.50.

Other criticality events that do not meet the above criteria but still result in a violation of the double contingency principle, such as events where the double contingency principle is violated but control is immediately re-established, should be reported to the NRC within 24 hours, in accordance with the commitments in the responses to the Bulletin. Finally, it is expected that unusual events will be promptly evaluated and that appropriate management and technical personnel will be available 24 hours a day to perform such evaluations.

It should be emphasized that it is important that NRC be notified of events related to criticality safety and that if there is any doubt as to whether an event should be reported, the NRC should be contacted.

Requested Actions

Addressees are requested to review their criticality safety reporting procedures to assure that they meet or exceed the reporting criteria described in this clarification of NRC Bulletin 91-01. Questions may be directed to the technical contacts listed below.

Reporting Requirements

Within 60 days of this Bulletin, pursuant to 10 CFR 70.22(d), each recipient shall provide the Commission with a statement either (1) confirming that their current reporting criteria and management implementation procedures meet these minimum criteria, or (2) revising their procedures to be consistent with the reporting criteria described in the clarification.

Address any such written correspondence to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC. 20555, under oath or affirmation under the provisions of Section 182a, Atomic Energy Act of 1954, as amended. In addition, submit a copy to the appropriate regional administrator.

Paperwork Reduction Act Statement

This Bulletin contains information collection requirements that are subject to the Paperwork Reduction Act of 1980 (44 U.S.C. 3501 et seq.). These requirements were approved by the Office of Management and Budget, approval number 3150-0009.

The public reporting burden for this collection of information is estimated to average 8 hours per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for further reducing reporting burden, to the Information and Records Management Branch (MNBB-7714), U.S. Nuclear Regulatory Commission, Washington, DC. 20555; and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-3019, (3150-0009), Office of Fuel Cycle Safety and Safeguards.

Further clarification to this Bulletin is provided in the attached responses to specific questions raised by licensees.

If you have any questions about this matter, please contact one of the technical contacts listed below.

Robert F. Burnett, Director
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
and Safeguards

Technical contacts: Marc Klasky, NMSS
(301) 504-2504

Robert E. Wilson, NMSS
(301) 504-2126

Attachment: Questions and Answers to Bulletin 91-01

If you have any questions about this matter, please contact one of the technical contacts listed below.

Robert F. Burnett, Director
Division of Fuel Cycle Safety
and Safeguards
Office of Nuclear Material Safety
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Technical contacts: Marc Klasky, NMSS
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Attachment: Questions and Answers to Bulletin 91-01

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OFC	FCLB		FCLB		FCLB		FCLB	
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DATE	6/ /93		6/ /93		6/ /93		6/ /93	

OFC	FCLB		DD:FCSS		D:FCSS			
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DATE	6/ /93		6/ /93		6/ /93			

C = COVER E = COVER & ENCLOSURE N = NO COPY

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ATTACHMENT

QUESTIONS AND ANSWERS TO BULLETIN 91-01--

Q1. If reporting criteria currently contained in the licensee's emergency plan cover the 91-01 requirements for immediate reporting and are consistent with the 91-01 immediate reporting criteria, does the 91-01 procedure need to cover only the 24-hour criteria?

A1. Yes. No other immediate reporting would be required under 91-01.

Q2. The double contingency requirement includes all control parameters that have previously, prior to the event, been identified in the Nuclear Criticality Safety analysis. Therefore, if a work station has six controls, and four are lost, is reporting required?

A2. No. Even if some controls are lost, as long as the double contingency requirement is fulfilled, it is not reportable under 91-01.

Q3. In cases where a deficiency in the criticality analysis is found, and in the same analysis a mitigating condition not previously identified in found, is the deficient criticality analysis reportable?

A3. Yes. The licensee should report it. In addition, the licensee should provide a corrected analysis.

Q4. If an unusual event or condition occurs, as envisioned in criteria 3 or 4 for immediate reporting, does the licensee have four hours to determine if it is within the established safety parameters and report it to the NRC?

A4. Yes. The licensee has a total of four hours to report the event to the NRC from the time the event or condition is first noted or identified.

Q5. What determines that a controlled parameter was previously identified formally by the NRC or licensee?

A5. Controlled parameters identified in Part 1 of the license would be considered formally identified by the NRC, and those controlled parameters identified in the nuclear criticality safety analysis would be considered formally identified by the licensee.

Definitions:

Safe Mass- 90 percent of the minimum critical mass for a given enrichment

Immediately reestablish- within four hours